

## **REMARKS**

By the subject Amendment, Applicants have amended Claims 2 through 7, 11 through 18 and 27 and added new Claims 29 through 46. Accordingly, Claims 1 to 7, 10 to 18 and 21 to 46 are pending herein. Claims 1, 10, 21, 25, 27, 29 and 32 are presented in independent form.

It should be noted that the amendments to Claims 2 through 7, 1 to 18, 27 and 29 have been made at the request of the Examiner. None of these amendments narrow the scope of the corresponding claims. Regarding Claim 28, the Examiner has alleged that “said controller” recited in line 3 lacks antecedent basis. Applicants direct the Examiner’s attention to line 1 of Claim 28 that recites “a controller” providing clear antecedent basis for the phrase “said controller” in line 3.

In the office action the Examiner has rejected a number of the pending claims under 35 U.S.C. 102 in light of Maus. In support of that rejection the Examiner has identified particular passages from Maus that are said to disclose the elements of the invention claimed by the Applicants.

However, it must be noted that Maus is a very specific patent directed to a particular method and apparatus for controlling riser base pressure and for detecting well control problems (such as kicks or lost circulation) that may occur during the drilling of an offshore oil well when using a gas-lifted riser. The structure and function of the method and apparatus disclosed and taught by Maus is fundamentally different from that as claimed by the Applicants.

The teachings of the Maus reference are perhaps best understood by reference to Figure 7A. Here Maus shows a riser 10 extending from a sub-sea wellhead to the surface. A drill string extends downwardly through the riser and transports drilling fluid or mud to a downhole motor. The drilling fluid and any drilling returns (which may include varying amounts of solids, liquids and gas) are re-circulated back to the surface upwardly through the annulus created between the inner surface of the

riser and the outer surface of the drill string. The very specific and particular problem that Maus attempts to address is the control of the hydrostatic pressure on the subsurface formation as a result of the hydrostatic head created by the circulating drilling returns. As stated by Maus, a sufficient hydrostatic pressure overcomes formation pore pressure and can prevent the influx of formation fluids into the wellbore (a condition known as a kick). However, if the column of drilling fluid exerts excessive hydrostatic pressure the reverse can occur and pressure from the drilling fluid can exceed the natural fracture pressure of the subsurface formation resulting in a loss of drilling fluid to the formation (see column 1, lines 36 – 49). As shown in Figure 7A, the control of the hydrostatic pressure within the riser is accomplished primarily through the injection of gas and/or additional drilling mud into the base of the riser. In Figure 7A, compressed lift gas flows down gas injection line 36a and into riser 10 through a gas flow control valve 82. Similarly, boost mud (additional drilling fluid or drilling mud) flows down a separate conduit or boost mud line 32a that is also connected to the base of the riser. The amount of boost mud injected into the riser is regulated by boost mud control valve 90 (see column 13, lines 1 – 49). Through controlling the rate of injection of compressed lift gas and boost mud into the base of the riser, the drilling rig operator can control the density of the drilling fluid returns circulating upwardly through the annulus and thereby control the hydrostatic pressure that is effectively applied against the subsurface formation.

In rejecting the claims of the current application on the basis of Maus, the Examiner has stated that Maus discloses an apparatus to control the rate of flow of a stream of pressurized fluid through a conduit. In support of that position the Examiner has relied upon the teachings of Maus at column 4, lines 30 – 40 and column 1, lines 32 – 35. The Examiner has also stated that Maus discloses the use of a flow control device operatively connected to said conduit, said flow control

device including an adjustable orifice wherein upon the opening of said orifice a portion of said stream of pressurized fluid is independently released from said conduit by said flow control device. In support of that position the Examiner has relied upon column 13, lines 24 – 49, of Maus.

It must be appreciated that the flow control valves and meters discussed by Maus in column 13 relate specifically to flow control devices that are either part of the gas injection or the boost mud system, and are not connected to the “conduit” (i.e., the “riser”). The operation of the Maus flow control devices does not cause a portion of the drilling fluid returns to be independently released from the riser. This is fundamentally different from the invention claimed by the Applicants. Although Maus may disclose the use of some form of flow control device in the compressed lift gas and boost mud systems, such devices do not result in a stream of pressurized fluid being independently released from the “conduit” (i.e., the riser in the case of Maus) as in the case of the Applicants’ invention. The sole purpose of the flow control devices in the compressed gas lift and boost mud systems of Maus are to control the amount of gas and mud that is injected into the riser at its base in order to control hydrostatic pressure on the subsurface information. Since the material passing upwardly through the riser is constantly changing (i.e., varying amounts of solids, liquids and gases) the amount of gas and mud injected into the riser will have to continually be adjusted in order to control the hydrostatic pressure on the formation.

The Applicants respectfully submit that the claimed invention is clearly distinguished from Maus and that upon a close examination of Maus it is clear that Maus is directed to a completely non-analogous area of art; namely, an apparatus and method to control hydrostatic pressure in a riser in offshore drilling applications.

Applicants further note that the Examiner, in rejecting various claims under 35 USC 102, is

attempting to combine two or more different structures. For example, in rejecting dependent Claim 3, the Examiner has cited col. 3, lines 61 to 67 of Maus. This passage expressly refers to a structure disclosed in U.S. Patent No. 4,813,495 (“495”). In fact, Maus expressly denigrates this structure. (See Maus, col. 4, lines 1 to 9) An anticipation rejection based on a combination of structures (in this case Maus and the ‘495 patent) even if the structures are contained in a single reference is impermissible as a matter of law. *ATD Corporation v. Lydall, Inc.*, 159 F.3d 534, 545 (Fed. Cir. 1998)(“A patent is invalid for anticipation *when the same device or method, having all the elements and limitations contained in the claims*, is described in a single prior art reference.”)(emphasis added). See also *Crown Operations International, Ltd. v. Krone*, 289 F.3d 1367, 1375 (Fed. Cir. 2002) Accordingly, Maus does not anticipate Applicants’ invention.

The rejections under 35 U.S.C. 103(a) in light of Harpster and Maus are directed solely to dependent claims of the application. Since the independent claims of the current application are distinguishable from Maus, the Applicants respectfully submit that there can be no finding of obviousness on the part of the dependent claims in light of the combination of Maus and Harpster.

Applicants respectfully submit that the subject patent application is in condition for allowance. Accordingly, it is respectfully requested the subject patent application be passed to issuance without delay.

## INFORMATION DISCLOSURE STATEMENT

Pursuant to 37 CFR §§ 1.56, 1.97 and 1.98, Applicant directs the Examiner's attention to the information listed on the attached three (3) sheets of Form-1449. All of the information listed on the attached two (3) sheets of Form 1449 are U.S. Patent Documents. Therefore, under the rules governing disclosure of information, copies of these U.S. Patents have not been provided. See 37 CFR § 1.98 (a)(2)(ii).

The Examiner is respectfully requested to fully and completely consider all cited information. The Examiner is further requested to forward an initialed copy of the attached Form PTO-1449 evidencing consideration of all cited information.

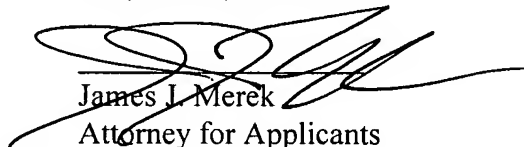
A check in the amount of \$180.00 is attached hereto to satisfy the government fee for consideration of the subject Information Disclosure Statement. Also, a check in the amount of \$1,200.00 is attached hereto to satisfy the government fee for the additional claims.

It is believed that no fees are due. However, should that determination be incorrect, the Commissioner is hereby authorized to charge any deficiencies to Deposit Account No. 50-0562 and notify the undersigned in due course.

Date:

11/17/06

Respectfully submitted,

  
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